THE BOSTON
MEDICAL AND SURGICAL JOURNAL.

VOL. XCIII. — THURSDAY, NOVEMBER 4, 1875. — NO 19.

REPORTS OF SIXTEEN CASES OF CATARACT OPERATIONS.[1]

BY B. JOY JEFFRIES, M. D., OF BOSTON,

Ophthalmic Surgeon to the Massachusetts Eye and Ear Infirmary, the Carney Hospital, and the New England Hospital for Women and Children.

LAST season I published in the JOURNAL[2] the records of one hundred and five cases of cataract operations, in seventy-one of which I used Graefe's operation for other than congenital, soft, or traumatic cataracts. To these I have now to add the records of sixteen more cases, being those which I have done since last season. The resulting vision in all comes within the range of success, and they therefore bring up the percentage. The relations of the family physician, the ophthalmic operator, and the surroundings of the cataract patient, I discussed in my previous article, and will say nothing further here on these topics.

The success I have met with I must attribute to the employment of Graefe's method of operating, from which I have varied only as the individual case required. Whilst in some or many of these eighty-seven cases I could have used the old flap operation with equal success, on the other hand, Graefe's operation alone was in place in all. I have not yet seen reason to depart from it, as I believe it gives me the largest number of successful operations. I was taught the old flap operation in Europe. Graefe's method came into use after my return, and I adopted it as soon as I became convinced of its superiority from its adaptability to all cases of cataract extraction.

In looking over my cases I can realize how valuable this method is, for I recognize many in which I should hardly have dared attempt any other. I have not thought it good ophthalmic surgery to try to prove by practice or precept in what way *other* than Graefe's modified linear extraction a cataract could be removed, but rather by the steady use of it, as most in place in all cases, to give my patients the best chance so far as the operation was concerned. That cataracts can be removed, and successfully, by various cuts through the cornea, I know and admit,

[1] Read before the Suffolk District Medical Society.

[2] Boston Medical and Surgical Journal, October 1, 1874.

but to me Graefe's operation still seems the safest and, as time shows, the most useful.

My friend Mr. Carter, in his recent work, has expressed these relations so practically and clearly that I can best serve my own purpose by quoting them at some length here. After explaining how Graefe was led to his operation and discussing the subsequent introduction of various forms of spoons, he says, "From this time onwards the history of cataract extraction bears a great surgical analogy to the history of ovariotomy; for just as one by one the causes of death have been eliminated from the latter operation by careful study and successive setting aside of the conditions which tended to the production of a fatal result, so in like manner the causes of failure have been eliminated from the former. Von Graefe then strove to combine an incision so small that it should produce little risk of corneal sloughing with one so made and so situated that it should permit the exit of the lens without injurious pressure. The result was that method of 'modified linear-extraction' which was the last of his great contributions to the art he loved so well. But in order that Graefe's incision should avoid the cornea, and should at the same time preserve the direction of a plane passing from the margin of the cornea through the centre of the eyeball, it became necessary that its extremities should lie very near to the ciliary region; and hence arose the danger already mentioned of inflicting an injury liable to be followed by cyclitis and irido-choroiditis in the eye which was operated upon, and by sympathetic ophthalmia in its fellow. In order to avoid these risks, many operators prefer a somewhat more extended incision in an anterior plane, not, as in the old method, in a plane parallel to the iris, but in one which, although inclined with reference to the iris, would not pass through the centre of the globe. In this preference I myself concur, and perhaps the best rules for making such an incision are those which have been laid down by M. de Wecker. I do not think, however, that an experienced operator will allow himself to be very closely bound by any rules of procedure, but he will vary every operation a little, in accordance with the size and prominence of the eye, the position of the cornea, and the estimated size of the hard nucleus of the lens."

As to various innovations proposed by one or another, Mr. Carter is quite outspoken, and with what he says I must agree. "During the period," he remarks, "when real and important changes were being effected in the methods by which cataracts were removed, the surgeons engaged in the work had many followers who made changes which for the most part were only apparent. It is hardly possible for two pairs of human hands, especially if endowed with different degrees of skill, to execute all the steps of a complicated operation precisely in the same way; and so it came about that each of several operators found it more convenient to himself, more suited to the requirements of his own eyes

and fingers, to deviate in some minute point of detail from the practice of somebody else, of whom, nevertheless, he was in the main an imitator. Of such changes there were none really worthy of record, or which possessed more than a fleeting or personal interest. They mostly suggested themselves as natural correctives to some kind of manual incapacity, and will suggest themselves again, as it were instinctively, to those who share the defects of dexterity in which they had their origin."

As to the various transverse corneal incisions for cataract-extractions, I am agreeably surprised to find Mr. Carter so entirely agreeing with my own views and experiences. He says, "Transverse corneal incisions stand self-condemned on *a priori* grounds. They have the single recommendation that it is very easy to make them, and they might perhaps be attempted with advantage by a benevolent traveler who was sojourning among a savage tribe, or by an ophthalmic surgeon upon whom the infirmities of age were creeping, or by one who was prevented by the natural quality of ambi-sinistrousness from employing better methods with ordinary prospects of success. Even in such cases Lord Melbourne's pithy inquiry, 'Could n't you have let it alone?' would be likely to suggest itself to reasonable men. As a matter of first principles, an incision through the front of the cornea must in a large proportion of cases be followed by adhesion of the iris to some part of the cicatrix; and adhesion of the iris, even if vision is for a time restored, entails a perpetual liability to the occurrence of destructive morbid changes. Moreover, again in a large proportion of cases, such an incision must be followed by alteration of curvature during the healing process, that is to say, by such a distortion of the cornea as to interfere seriously with vision. We see this every now and then in clean corneal wounds made accidentally by broken glass or by some sharp instrument, and in which the lens has escaped injury. It was seen still more frequently a few years ago, when flap-extraction was commonly performed, in the cases in which that operation had been badly done. On all the above grounds I have abstained from seeking any personal experience of transverse corneal sections, feeling that they cannot be said to fall within the boundaries of legitimate surgical experiment."

REPORTS OF SIXTEEN CASES OF OPERATION FOR CATARACT.

No.	Age.	Sex.	General Health.	Quality and Duration of Cataract.	Functional Examination.	Method of Operating; Incidents; Anæsthesia, in all cases by Ether; Remarks; After-Treatment.	Duration of Treatment.	Resulting Vision and Date of Record.
1	83	M.	Good.	Hard, more than ripe. O. S.	All normal.	Graefe upwards. Very large lens. Patient had done so well with previous operation on the other eye that after the wound healed in 48 hours he took off the bandage and got up and went about, opening inner angle of wound in which tag of iris is. This has given no trouble one year later.	18 days.	1 year. V. = 15-100. Sn. 5½.
2	71	F.	Fair.	Senile. O. S.	* Good.	Graefe up. Normal. Patient very restless, and bandages kept on with difficulty.	21 days.	1 year. V. = Sn 3½. V. = 20-70.
3	57	M.	Feeble.	Senile. O. S.	Normal.	Graefe up. Vitreous fluid, and flowed at completion of cut. Lens sank and removed with spoon. Did well till 9th day, when patient had an attack of neuralgia and conjunctivitis from being sent into a cold ward by mistake. The case, however, did well, and vision improving when discharged.	37 days.	37 days. V. = 20-50. Sn. 6½.
4	48	M.	Good.	Senile. O. S.	Good.	Graefe up. Quite normal, considering the posterior synechia.	16 days.	16 days. V. = 20-100. Sn. 1½.
5	58	F.	Feeble.	Senile. O. D.	Very convex cornea, and spots on it from ulceration.	Graefe up. Normal, except the thin and very prominent cornea fell in quite flaccid, which did not prevent healing normally.	21 days.	21 days. V. = 20-100. Sn. 3.
6	48	M.	Good.	Senile. O. D. of No. 4.	Good.	Graefe up. Normal, except much cortical left, as patient was irritable under ether.	17 days.	17 days. V. = 20-100. Sn. 2½.
7	42	F.	Good.	Traumatic. 6 months. O. S.	Good.	Graefe up. Normal.	11 days.	11 days. V. = 20-70. Sn. 4½.
8	73	M.	Good.	Senile. Hard. Overripe. 10 years. O. S.	Good.	Graefe up. Normal, except considerable blood, and a large but flat lens emerged through a wound made large on purpose. Patient did very well till 12th day, when inflammation came on and some small pieces of cortical proliferated. Patient had senile delirium. Pulled off bandages constantly, and found on floor pulling off clothes. The mass in anterior chamber became absorbed under atropine, leeches, etc. In 4 months most of pupil cleared. The case did well beyond expectation.	25 days.	4 months. V. = 8-60. J. 12.

9	70	M.	Good.	Senile. Hard. Overripe. O. S.	Good.	Graefe up. Large amount of cortical, showing lens was liquefying.	14 days.	14 days. V. = 15-30.
10	66	M.	Good.	Senile. Hard. O. D.	Good.	Graefe up. Normal. Either minute tag of iris or pigment in inner angle of the wound.	14 days.	37 days. V. = 20-50. Sn. 1½.
11	65	M.	Good.	Senile. O. S.	Good.	Graefe up. Normal. Considerable soft cortical. Patient constantly interfered with bandage.	21 days.	21 days. V. = 20-70. Sn. 2.
12	64	F.	Fair.	Senile. Overripe. O. S.	Good.	Graefe up. Eye very deep set. A hard, smooth lens escaped, quite clear of cortical.	17 days.	25 days. V. = 20-70. Sn. 3½.
13	45 to 50	F.	Fair.	From old irido-choroiditis.	Good.	Graefe up. Upon pressure a large, pretty firm mass escaped through the cut, with a cup shaped depression on its anterior surface. On pressure again another mass came, the size of a nucleus, but of no firmer consistency than the former. Resulting vision is no better on account of former choroiditis.	16 days.	30 days. V. = 20-200.
14	65	F.	Good.	Senile. O. D.	Good.	Graefe up. Normal.	14 days.	14 days. V. = 20-70. Sn. 1½.
15	66	F.	Fair.	4 years. From old choroidal trouble.	Good.	Graefe up. Against orders patient had eaten; he vomited during ether, requiring its suspension. Operation rendered difficult. Long-continued ciliary redness.	44 days.	46 days. V. = 8-40. Jäger, 8.
16	60	M.	Good.	Senile. 2½ years.	Good.	Graefe up. Normal. Twice, without apparent cause, a little blood in anterior chamber.	21 days.	21 days. V. = 20-80. J. 5.

EXTIRPATION OF THE UTERUS BY ABDOMINAL SECTION.[1]

BY JAMES R. CHADWICK, M. D.

On May 28, 1875, I was called to Mrs. C., a patient of Dr. Kingsbury, of Holbrook, with a view to the removal of an abdominal tumor. She was fifty-four years of age, had had a child and a miscarriage in early life. She was in good health until a tumor appeared in the left side of the abdomen, and uterine hæmorrhage set in, about six years ago. The flow of blood persisted uninterruptedly for three years; during the last three years it recurred profusely at intervals. The growth of the tumor had been slow but continuous. Menstruation had ceased eighteen months before. The patient was fairly nourished, but was gradually losing flesh and strength. She had been confined to the house for nine months, owing to constant pain in the abdomen, apparently caused by the pressure of the tumor. Latterly she had been subject to frequent attacks of headache, vomiting, and convulsions, the latter apparently of hysterical nature.

Examination. The girth at the umbilicus was thirty-four inches; half-way between this point and the pubes it was thirty-seven inches. The lateral symmetry of the abdomen was perfect. A firm, perfectly round tumor was felt, rising two inches above the navel and resting upon the brim of the pelvis. Bimanually the mass was recognized as being unmistakably the body of the uterus, enlarged by a fibroid growth. Three inches obliquely above and to the left of the navel was a body as large as a small potato, projecting from the surface of the uterus. It was either an enlarged ovary or a second fibroid. The abdominal walls were very lax, and freely movable over the tumor. The cervix was immediately behind the pubes but could be readily displaced to the hollow of the sacrum by inserting the left hand above the fundus and tilting it forward. The uterine sound could not be introduced more than an inch. All other organs and functions of the body were normal; the heart's action, however, was quite irregular, intermitting every fifth beat; the pulse was of fair strength.

In my opinion there was no possibility of removing the tumor per vaginam, owing to its size, and I was timid about undertaking the abdominal operation, with its great risk, on account of the weak action of the heart. I consequently declined interfering, in spite of earnest solicitations, until all other means for the relief of the patient's sufferings had been tried.

It is needless to specify the various remedies resorted to without avail during the summer; let it suffice to say that at the end of three

[1] Read before the Suffolk District Medical Society, October 30, 1875.

months the condition was unchanged, except that under the administration of quinine the intermittence of the heart had become much less frequent. Actuated by the following considerations, I finally consented to operate, provided Dr. Knight failed to discover evidence of organic lesion of the heart: the woman's sufferings in one way or another had been so great during the past year that she had not been out of the house, had had no enjoyment of life, and had been of no service to her friends; there seemed to be no chance of relief by other measures; the patient and her friends fully realized the danger of the operation, and yet claimed it persistently. The prognosis I gave was that the chances of recovery or death were equal; this was a little more favorable than is shown by the sixty odd operations that have up to this time been placed on record, but many of these were done in very desperate cases, without suitable instruments, whereas the local condition in my patient was the very best that could be hoped for; she was, moreover, calm, hopeful, and came of good and healthy stock.

Dr. Knight reported as follows: "I found on examination occasional intermittence of the heart. It was difficult to determine its size on account of fat and the large size of the mammary gland. The sounds were of fair strength, the pulmonic second sound, however, being more distinct than the aortic. There was a systolic souffle heard over the ensiform cartilage, not propagated far away. There is no proof of serious organic disease."

I operated in Boston on Saturday, September 18, at ten A. M., with the assistance of Drs. Lyman, Ellis, Nichols, J. Homans, Sinclair, and Boardman. With the patient under the influence of ether, I made an incision eight inches long in the median line of the abdomen, lifted the enlarged uterus out of the abdominal cavity, and found entire freedom from adhesions as expected. I next affixed a Wells' clamp to the cervix and broad ligaments, but fearing that the latter might not be properly held by the clamp, I passed a double whip-cord through the cervix and tied it on either side so as to include the broad ligaments. The body of the uterus, containing the fibroid, was then cut away. In spite of my precautions the left broad ligament slipped from out both clamp and noose; the large vessels ramifying in it sank into the pelvis and bled considerably before they could all be secured. The woman's pulse at this time became imperceptible, but soon rallied under the influence of repeated subcutaneous injections of brandy. I sponged out the peritoneal cavity until it was entirely free from blood, brought the clamp into position without much tension upon the pedicle, closed the wound with silk sutures, applied the common support of cotton-wool secured by adhesive plaster, and put the woman to bed in a rather prostrate condition. The operation lasted a little over an hour.

The patient rallied from the state of depression in the course of two

hours; she had some pain during the afternoon, requiring morphine; there was a little gentle vomiting. Pulse 125, temperature (vaginal) 100°. Beef-tea and brandy enemata were administered.

Sunday, September 19, A. M. Pulse 140, temperature 1005°.; slight vomiting arrested by ice-pill in a teaspoonful of brandy; quinine. Four P. M., pulse 165, temperature 101.2°. No pain; sweating, retching.

From this time the pulse gradually fell until it reached the normal on the fourth day; while it was elevated there was no intermittence, but as it sank, the old irregularity again manifested itself, and became so marked on the sixth day that I was repeatedly unable to count fifty beats in the minute. The temperature fluctuated between 101.6° and 102.2° until the sixth day, when it began to sink.

The clamp fell off on the sixth day, as did most of the sloughing end of the pedicle. The wound was cleansed and disinfected with salicylic acid most thoroughly every four hours. There was at no time any abdominal tenderness, distention, or even flatulence. The bowels responded to enemata on the fourth day. The urine was drawn with a catheter every one or two hours. All the abdominal sutures except the one next to the pedicle were removed on the seventh day.

On the seventh day the pulse was normal; the temperature had fallen to 101°; the tongue was clean; the appetite was good; the skin felt naturally; the slough had all come away from the pedicle, which was suppurating nicely, and drawing together; the bowels were acting freely; there was no peritonitis or flatulence. I felt that my patient had escaped all the natural dangers attendant upon the operation.

At eleven o'clock Mrs. C. had a slight chilly sensation running down her spine; the temperature and pulse, however, had not risen. In the afternoon she complained of sore throat, which grew worse toward night, but did not arouse my suspicions, as the pulse was only 80 and the temperature had actually fallen half a degree since morning. By midnight it became evident that tetanus had set in. The respiration became so difficult that, dreading lest the abdominal wound should be torn open by the straining, I supported the abdominal walls by fresh broad strips of adhesive plaster, but in spite of this precaution my fears were soon realized. After a severe paroxysm, I found a large mass of intestines protruding from the wound; it was with the greatest difficulty that I finally succeeded in replacing them within the abdominal cavity and sewing up the wound again.

Toward morning the breathing was so labored that at my request Dr. Lyman performed tracheotomy with much temporary relief. The patient lingered, with but slight benefit from enemata of chloral, and died near the end of the eighth day.

An *Autopsy*, made by Drs. Fitz and Cutler and myself, demonstrated that all the internal organs were perfectly healthy. There was no trace

of lymph in the peritoneal cavity except in the vicinity of that part of the wound which had been forced open twenty-four hours before death. There was not a drop of serum or a trace of blood or lymph in Douglass's pouch. I have here the pedicle, made up, as you see, of the cervix uteri and right broad ligament; the cut layers of the left ligament are here plainly visible, bounding this long denuded surface of cellular tissue, which was taken up from the floor of the pelvis. You will notice that the peritoneum up to the very edges of this surface, as well as entirely around the cut surface of the pedicle, is free from all signs of inflammation. The pedicle had evidently been firmly united in its whole circumference to the muscular layer of the abdominal walls.

Nothing could more fully corroborate the perfect success of the operation *per se*, as indicated by the clinical history, than the condition found at the autopsy.

The specimen, removed at the operation, weighed about four pounds, was oval in shape, measured twenty-two or twenty-three inches in its greatest circumference, and had projecting from its surface two or three potatoid tumors, one of which had been recognized during life; they were ordinary fibroids of dense structure. The left ovary was the seat of a small fibroid. The uterine cavity passed up posteriorly to the principal mass for the distance of seven inches, as had been discovered at one time in the course of the summer, when the os had been dilated with sponge-tents and the sound passed up to the fundus. An incision into the large tumor in the anterior wall of the uterus showed that it was of a coarse trabeculated structure, with interstitial spaces lined with a delicate membrane. The whole mass was inclosed within a capsule, which was readily enucleable from the encompassing uterine walls. Only a comparatively thin wall of uterine tissue interposed between the tumor and the cavity of the uterus.

In conclusion, I feel justified in claiming that the result in this case, although fatal, should not depreciate the operation in the eyes of the profession, but should encourage them to adopt the opinion of Péan, who, after operating in twenty cases with fifteen recoveries, asserts that the danger is no greater than in ovariotomy. The cause of death here was one that is common to all surgical operations, great or small, and can in no way be regarded as a danger peculiar to the extirpation of the uterus.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY O. F. WADSWORTH, M. D.

Embolism of the Arteria Centralis Retinæ. — Although many cases have been reported with this heading, the diagnosis has been till lately only in a single case verified by autopsy. Recently several cases have been published in which an anatomical examination was made.

I.[1] A man aged fifty-eight, while sitting quietly in his chair, suddenly and totally lost the sight of the right eye without pain, headache, or giddiness. Seven days later the eye was externally normal; the media were clear; the vision was wholly gone. The disk was much obscured by a white halo. The retina was rather hazy throughout, much more so at the disk than at the equator. The macula was marked by a dark reddish dot, surrounded by a white hazy halo, shading off gradually. The retinal arteries were reduced to very fine lines. The retinal veins as they emerged from the disk were about half the normal size and increased gradually up to the first bifurcation; each of the branches arising here began as a very fine trunk and increased to the next point of division, and this appearance was repeated everywhere. On the halo around the macula, the minute venous branches were remarkably evident. There was a loud double aortic murmur. The effusion in the retina was in eleven weeks absorbed, the disk had become very white, the arteries were very fine, the veins rather larger than the arteries, especially toward the equator. Four months after the loss of sight the patient died. Very extensive disease of the aortic valves was found. The right optic nerve was somewhat shrunken. The central vein was patent but smaller than normal. The artery, as a tube, was no longer in existence; its former position was clearly indicated, however, by a well-defined circular mass of concentrically arranged fibrous tissue adjacent to the vein.

II.[2] A clerk, aged fifty-four, while standing at his desk lost the sight of the left eye suddenly. "There was a kind of bright mist before it," but it was not quite blind. Four days later, Mr. Wordsworth saw him and diagnosed "œdema of the left retina and embolism of the arteria centralis retinæ." Very distinct mitral and aortic systolic bruits were heard on auscultation. Three months later the patient had symptoms of acute glaucoma, and he described only "a diamond shape" of light as remaining at the temporal side. Iridectomy was followed by temporary relief of pain, enlargement of the visual field, and improvement of sight so that he could count fingers. Three or four weeks later there came on great congestion of the eye, pain, and loss of sight.

[1] Priestley Smith. British Medical Journal, April 4, 1874.

[2] Nettleship. Ophthalmic Hospital Reports, viii. 1.

The globe was excised. All the chief retinal vessels, both arteries and veins, contained blood, and in both sets of vessels the column was frequently broken, leaving small empty spaces. This appearance, at least in the veins, was probably due to post-mortem coagulation and shrinking. The principal veins in the retina were somewhat engorged, but became suddenly diminished in size on the disk. The column of blood in the arteries was smaller than that in the veins, and their walls appeared whiter and thicker, a change due probably to simple contraction. On the disk the main upper and lower divisions of the artery were obscured by a white structure, but two moderate-sized branches dipped into the disk a little distance from its margin. There were a few small hæmorrhages and glistening white deposits in the retina. Sections through the nerve showed the main terminal branches of the central artery plugged by a fibrinous mass, somewhat organized. Behind this was a more recent deposit, made up of fibrine and white blood corpuscles, which had, as it formed, cut off the blood current from the remaining arterial branches. The appearance of the most posterior portion of the thrombus, as well as of that of the blood in the branch which was given off farthest back, made it probable that blood had flowed through this branch not many days before the eye was removed. Nothing was found to explain the glaucomatous symptoms.

III.[1] A man of fifty-eight, a patient in hospital on account of partial paralysis of the left extremities, which was supposed to be the result of embolus in the right hemisphere, suddenly became blind of the left eye one night as he sat on the chamber-pot. The eye, examined within twenty hours, was externally normal; the media were clear. The disk was pretty well defined, and of the normal color. The arteries on the disk were empty, scarcely recognizable, but they could be followed some distance on the retina. The retinal veins resembled dark bluish-red, pretty thick lines, less winding than normal, and with occasional breaks in the blood column. The region of the macula and toward the disk presented a slight grayish opacity. The macula was not distinguishable. At a spot corresponding about to the lower edge of the macula, a thick, dark-red line, the length of half the diameter of the disk was seen. The following day an irido-choroiditis, with chemosis of the conjunctiva, œdema of the lids, and some exophthalmus, had commenced to develop. The retina was more opaque; its vessels were much in the same condition. In the course of two weeks the inflammation had begun to subside, and slowly disappeared. Four months from the attack, the vitreous had become transparent. There was atrophy of the disk and retina, and large patches about the disk on which the choroid was atrophied. Three thin vessels ran on the retina from the disk. In the retina were a few small hæmorrhages. Toward the periphery of the

[1] Schmidt. Archiv für Ophthalmologie, xx. 2.

fundus the changes were less, and more vessels could be seen. The patient died eleven months from the occurrence of blindness. There was an old hæmorrhage in the right hemisphere. The heart was much enlarged, the wall of the left ventricle thickened, the aortic valves atheromatous. The left opticus was decidedly smaller than the right. The arteria centralis retinæ in a large part of its course in the nerve was filled with a hyaline mass, in one place at least showing signs of organization. Very soon after the entrance of the artery into the nerve it gave off a considerable branch which ran parallel with it toward the globe. This branch also was from a point near its origin filled with a mass similar to that in the main artery. Within the eye, at the parts in which the inflammatory changes had been greatest, the retina and choroid were so fused as to form but one thin membrane, and here the specific elements of the retina had disappeared and it was changed into fibrous connective tissue. In the more peripheral parts the tissues were better preserved, and here, in correspondence with the ophthalmoscopic appearance, the blood-vessels were more numerous and larger. At the point where the arteria centralis was given off from the ophthalmic artery, and in some of the fine arteries in the neighborhood, there were signs of thrombi, and this would accord with the supposition that the irido-choroiditis which developed was in consequence of embolic stoppage of ciliary arteries.

IV.[1] A woman aged fifty-four, after a fright, became suddenly blind of the left eye. The following day a large fresh hæmorrhage at the macula lutea of this eye, and many small hæmorrhages, some old, and in both eyes, were seen. There was a large central scotoma in the left field of vision. The retinal vessels and the disk appeared normal. A murmur was heard with the systole of the heart at the apex. Vision improved, and after three months the patient could read 17 Jaeger. A month later vision again failed, and there was found atrophy of the disk, with the arteries obliterated at the disk, but containing blood at the periphery. The atrophy increased. Death occurred some fourteen months after the loss of sight. There was insufficiency of the bicuspid valve. The arteria centralis in the nerve was small, and filled with a partly homogeneous, partly granular substance. The eye was not removed, however, till sixty hours after death, in the summer, and the history and appearances would seem to point at least quite as strongly to hæmorrhagic retinitis as to embolism. The diagnosis can be hardly considered other than doubtful.

V.[2] A woman of sixty, while quietly sitting, suddenly became blind of the left eye. Five years before, an apoplectic attack had been followed by permanent paralysis of the left side. When the blindness

[1] Sichel. Archives de Physiologie, iv.

[2] Popp. Inaugural-dissertation. Erlangen, 1875.

came on there was no pain nor other symptom. Ophthalmoscopic examination gave the "characteristic appearances of embolus of the central artery of the retina, as it has been described by v. Graefe and Liebreich." No more minute account of the symptoms is given. There was marked insufficiency of the mitral valve. Two years and a half later the patient died, and in the heart was found great dilatation of the left auricle and insufficiency of the mitral valve, while the arch of the aorta presented much atheromatous roughening. The arteries at the base of the brain were much sclerosed and dilated. The left optic nerve was thin and atrophied, but careful examination showed nowhere obliteration or narrowing of its vessels, nor was there anything to point to the possibility that the supposed embolus had again become pervious.

VI. Loring[1] gives five cases which had been regarded by himself and others as of embolism, but in which their further development led him to doubt the correctness of the diagnosis. In the first case there was an anatomical examination.

A woman aged sixty-two, while standing still, experienced a sudden loss of sight of the right eye, without other sensation than that of commencing faintness. During the three weeks which elapsed before she presented herself, vision in this eye was limited to distinguishing between light and darkness, though with slight and transient occasional improvement. The disk appeared rather injected than pale, the arteries were not much diminished in size, the veins were greatly distended. There were three comparatively recent hæmorrhages in the retina. No pulsation of arteries or veins could be produced by pressure. About the macula there was a milky opacity of the retina, and a bright cherry spot at its centre. A month later the arteries appeared about the same, the veins were less distended, and narrowed toward the nerve; the opacity about the retina had disappeared, and the hæmorrhages had been absorbed. Soon after there was a glaucomatous attack, with hæmorrhage. Two months after the first attack there was another attack of glaucoma, and the eye was excised. No embolus was found, but there were thrombi in some of the vessels of the choroid; some signs of proliferation in the lamina cribrosa. The patient died a year and a half later. She had enjoyed good health till three or four months before her death, when symptoms of phlebitis began in the left leg and gradually increased, and at this time signs of heart-disease were found. No heart trouble could be made out at the time the eye was affected.

It has been often asserted that the diagnosis of embolism cannot be correct unless there is very decided diminution of the retinal vessels, and that therefore many of the cases reported as embolism must be rejected. In support of the opposite view, it has been urged that a more or less ample collateral circulation might soon be established through

[1] American Journal of the Medical Sciences, 1874, page 313.

the vessels which enter the papilla and disk from the anastomosing ring of ciliary arteries in the sclera around the nerve, and from the choroid. The anatomical investigations of Leber do not support this idea, however; he reiterates in his more recent publication on the subject that such communication is a very contracted one. It is by no means certain that in any case collateral circulation of any amount is established, but Schmidt, in relation to this point, calls attention to the recent investigations of Schwalbe.[1] Schwalbe states that from the central artery, soon after it enters the nerve, a branch of considerable size is given off, which, gradually diminishing, runs forward parallel with the arteria centralis as far as the sclera, giving off branches to supply the nerve-bundles in its course. In Schmidt's case this branch was present, but plugged. He suggests that in case of sudden stoppage of the flow of blood through the central artery, the pressure in this side branch would be naturally much increased, and it would therefore be in a more favorable condition to afford a collateral supply of blood to the retina than the ciliary arteries, in which stopping of the arteria centralis would have but little influence on the pressure.

In the case reported by Nettleship no details of the ophthalmoscopic appearances are given, so that it is impossible to say what the condition of the vessels, as to size, etc., was soon after the attack. It is probable, however, from the state of things found in the eye after removal, that they contained, some of them at least, a considerable amount of blood. Loring's case seems to furnish negative evidence against the existence of embolism without contraction of the vessels. The case reported by Sichel is too doubtful to be taken as evidence.

The opacity about the macula, with red patch at the fovea, described as a characteristic sign of embolus, is observed also in other affections. Magnus[2] states that with embolus this opacity only appears late, and if it is present in the first few days it is evidence of hæmorrhage into the optic nerve. Schmidt's case disproves this, as the opacity was found twenty hours after the loss of sight. Here the red spot at the fovea was wanting; perhaps the disturbance which showed itself as an iridochoroiditis within the next twenty-four hours was already sufficient to cause opacity also of the thinner portion of the retina at this spot, or of the choroid behind it.

(*To be concluded.*)

[1] Handbuch der Augenheilkunde, i. 346.

[2] Die Sehnerven blutungen, page 50.

PROCEEDINGS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

R. H. FITZ, M. D., SECRETARY PRO TEMPORE.

SEPTEMBER 25, 1875. The vice-president, Dr. C. D. HOMANS, in the chair.

Limited Responsibility. — DR. T. W. FISHER read the following paper: —

"This term is applied by alienists and medical jurists to those forms of mental unsoundness which do not wholly destroy the patient's legal responsibility. The law as well as public opinion has not been in favor of nice distinctions in this matter, and the legal tendency is towards entire responsibility when a person is not decidedly and manifestly insane. The stubbornness of facts has, however, gradually forced the admission of the above term into general use. The case of Arthur O'Connor, who two or three years ago was arrested for an attempt to shoot the Queen of England, is a good illustration of the way in which this legal prejudice usurps the place of justice. In spite of Dr. Tuke's evidence that this boy was insane, court and jury made indecent haste to show their loyalty by a conviction for murder. Recently pardoned by the clemency of the Queen, the boy has given unmistakable evidence of continued homicidal tendencies and of undoubted insanity, and has been sent to an asylum.

"The criminal laws are based on the moral responsibility of the criminal, though in a very rude way, since the degrees of moral accountability are many and obscure. The idea that the insane are sometimes morally responsible seems to be new to the public, judging from newspaper discussions in cases in which insanity has been alleged as an excuse for crime. Of course the insane are often responsible for their acts, and know it, and are thereby subject to moral and disciplinary treatment in hospitals. If it were not so, no appeal could be made to their sense of propriety, or feeling for right and wrong, or desire for improvement in conduct. This responsibility, however, is largely limited in most cases by disease, placing the patient somewhat in the attitude of a child towards those in authority, and the physician *in loco parentis*.

"All the insane except the utterly demented, or acutely maniacal or delirious, know that they are considered to a certain degree unaccountable for their acts. The knowledge is very seldom taken advantage of as an excuse for violence or crime, though it is not an uncommon line of argument for a reasoning lunatic to adopt. The insane act usually either upon impulse or from delusion, and in neither case does the question of their irresponsibility often occur to them. If acting from impulse they do not stop to reason; or if they act from delusion, they believe themselves to be both in the right and fully responsible for their acts, whatever others may think of them.

"The case of George Blampied, of England, recently quoted,[1] is no exception to the above rule. It is dangerous to infer perfect self-control because the patient shows it in reference to certain of his acts. Blampied could be bought off by tobacco from committing minor acts of violence, not resulting directly perhaps from morbid impulse, but was helpless to resist under other circumstances.

[1] Boston Medical and Surgical Journal, August 26, 1875.

Last week I was called to testify in a case of homicidal impulse where the evidence was no stronger than in the case of Blampied. The district attorney and the judge admitted the existence of insanity, and the jury acquitted the prisoner in their seats.

"The law practically does recognize many degrees of responsibility for the same crime, as in the case of minors. First offenses incur light punishments, and principals are more severely dealt with than dupes and accessories. There is a certain degree of leniency exercised towards offenders who give evidence of extreme ignorance or a low grade of intellect. In prisons there is always a milder discipline for the large class of epileptics and weak-minded prisoners, upon whom punishment has no reformatory effect.

"These distinctions are easy to make when feelings of prejudice and resentment towards the criminal have not been excited. If, however, an atrocious murder has been committed, especially if a number of unpunished murders has previously excited public indignation, we often feel an instinctive desire for the immediate extermination of its author. The criminal is held to be as bad as his crime. Instead of putting ourselves in his place, we put him in our own place, and attribute to him the same degree of guilt we should expect to feel at having deliberately committed the same crime.

"The above feelings have evidently possessed the public mind to a large degree in the case of Jesse Pomeroy, now under sentence for murder. This boy, by his own confession, is guilty of a series of shocking crimes at which nature revolts. At the age of twelve years he was sent to the State Reform School for the torture of young children in a manner showing utter insensibility to their sufferings, and in some cases evident satisfaction. He was pardoned by the culpable leniency of the trustees, and soon after, at the age of fourteen years, committed two murders upon children, the details of which are well known.

"The first thing that strikes an alienist in reading the evidence in the above case is the apparently motiveless character of the acts, and the fact that they belong, by family resemblance, to that class of acts often committed by boys, and sometimes by girls, who are either morally deficient or morally insane. These acts are most frequent about the age of puberty, and depend in some cases on a state of cerebral erethism induced by masturbation. They comprise every variety of vicious and outrageous conduct, such as theft, running away from home, intoxication, self-abuse, cruelty to animals, obstruction of railroad trains, setting of fires, torture of children, and sometimes homicide or suicide. Every physician knows some such case, and is satisfied of the partial absence, at least, of moral accountability, in spite of the apparent intellectual soundness.

"I will take as illustrations three instances of boy torture, selected from the daily papers within a few weeks.

"The first is that of Harry Rogers, of San Francisco. When eight years old he was fond of flaying and cutting puppies and chickens, carefully avoiding any vital part. At the age of eleven or twelve he shockingly mutilated a child three years old by cutting it with a sharp bone, making no less than nineteen wounds, and nearly cutting off its right ear. He generally confesses his misdeeds, and says he cannot help them. He is equal in education to other boys of his age, and has no marked peculiarities of appearance.

"The second case recently occurred in Newton. A boy eighteen years old took a younger boy into the fields, and compelled or induced one of his comrades to go also. The younger boy was stripped, tied hand and foot, and then cut in various places in a deliberate manner. A young girl accidentally passing was forced to come and look at the naked and mutilated boy. When he was released and allowed to dress, he made a rush at his tormentor with his pocket-knife, but was knocked down with an axe-helve.

"The third case recently occurred in a small village near Florence, in Italy. Four children had mysteriously disappeared, when Carlo Grandi, a carpenter's apprentice, twenty-three years of age, was discovered in the act of killing a fifth victim. He had dug a grave in the yard of his shop, and had attempted to bury alive a little boy about ten years old. He decoyed him into the hole, covered his head with an apron, heaped a basketful of gravel on him, and stifled his outcries by gagging him with the handle of a chisel. On searching the yard the graves of three other children were found. No motive could be assigned for these acts.

"Cases of moral imbecility or insanity in minors, from their evident need of moral treatment and discipline, have usually been sent to reformatory institutions when coming within the operation of the law. This has been the course taken even when homicide has been committed. A boy named Shehan, aged fourteen years, was sent to the Westboro' Reform School from Franklin, Mass., a few years ago, for stoning and drowning a young companion, simply, as he said, that he might 'see the little devil kick in the water.' The same boy put stones on the railroad track. Every hospital for the insane has a few specimens of this kind. I recently certified in the case of a young girl who had set three fires in her mother's house before being suspected as the incendiary.

"The Pomeroy case has excited so much feeling that it is almost impossible to judge it fairly. The public pressure for his execution is strong in some quarters, and the medical profession is not free from the infection. But if the morbid element is seen and admitted in other cases of this class, why deny its existence in this one simply on account of the number and atrocity of the acts committed? These acts are a most important part of the evidence for or against insanity, and the more unnatural and motiveless they appear, the stronger the evidence of some morbid impulse to account for them. What could have been the motives, for instance, which incited Pomeroy to force one of his victims to repeat after him the Lord's Prayer, closing it with a vulgar word? Or in another case to kindly draw the subject of his tortures home through the streets of South Boston on a hand-sled?

"I have seen Pomeroy but once, and that was since his sentence. He recounted his horrible deeds without reluctance and with perfect *sang-froid*. In some of the details his memory seemed at fault, though he admitted the probability of all the evidence against him. He was unable to give any reason for his conduct except the usual one that he felt that he must do as he did. He confirmed the testimony of his school-mates that he was subject to sudden and violent headaches, but did not claim to have had one at the time of his acts. He did not claim to have been insane, and yet did not see how he could have done as he did in his right mind.

"The evidence of self-abuse was plainly written on his countenance, as well as in his hands, which he kept concealed at first. On seeing that I observed them he asked what was the matter with them. They were purple, cold, and clammy to a degree seldom seen except in old cases of dementia with masturbation. He at first denied but afterwards admitted the correctness of my inference. He also admitted that he had practiced the habit for years, and particularly at the periods when his crimes were committed. At the Reform School he read some medical book on the subject, which checked the practice for a time. He has recently written to some friend, as the sheriff informs me, warning him against the habit.

"Mania from masturbation is a well-characterized form of insanity, being set down as a distinct variety in Dr. Skae's classification. It affects all three departments of the mind. The attention and memory are weakened and the judgment impaired. There is a state of vanity, conceit, and love of notoriety, change, and adventure in direct contrast to the dullness, passivity, and love of solitude noticed before the mind is actively affected. Sometimes great restlessness is observed, with a tendency to go from place to place without motive, to run away from home on some wild, impracticable errand, in hopes of making a fortune or becoming famous, with inability or indisposition for continuous employment of any kind. The moral sense is blunted, and vicious courses new to the individual are entered upon. The will is weakened not only in reference to the habit in question, but as shown in fickleness of purpose, and in sudden yielding to impulses of an erratic or dangerous character. Under the cerebral conditions induced by this habit there is a tendency to mental spasmodic action, as well as to epileptic vertigo and convulsions.[1]

"All the experts without exception who examined Pomeroy before his trial considered him weak-minded; all but one were sure he was insane and at least but partially responsible at the time of the homicides; two of them suspected the presence of epilepsy in an obscure form. The diagnosis of masked epilepsy is often difficult. The patient can give no clear account of his condition at the time of attack, and when epileptic vertigo is so often ignored by ordinary observers, it is not strange that the signs of this mental epilepsy, as it might be called, are generally misunderstood. In these cases a brief attack of mania, or of semi-consciousness, in which the patient wanders long distances and does strange things, takes the place of vertigo or convulsions in persons disposed to epilepsy. If the test of complete forgetfulness of what has occurred be applied in the case of Pomeroy, he was not epileptic. This is still a mooted point, and I believe the want of memory is sometimes but partial.

"The case shows many of the characteristics of mania from masturbation. Conceit and love of notoriety are especially prominent in his recent foolish and inconsistent retraction of his numerous confessions, in which he argues in a confused way the impossibility of his having committed any of the crimes with which he is charged; alleges that he confessed to keep his mother out of jail, and that he imposed on the doctors who examined him with false state-

[1] Since writing the above, I have learned that young Walworth, the New York parricide, has been examined by a commission of experts, who have decided that he was a victim of this form of insanity, and he has been removed from prison to an asylum. T. W. F.

ments about his head symptoms. This piece of special pleading is compounded of lies, quibbles, and slang jokes put together in a sort of mock legal manner. He is evidently tickled at his own ingenuity. The press have made much of this retraction, but the waste basket of any insane hospital would furnish similar copy in abundance. The only point worth noticing is that while denying the commission of the crimes which he had freely confessed over and over again, for months, and to many different persons both before and after conviction, he argues with apparent sincerity that if he did commit them he must have been insane. He is evidently willing to take what advantage may accrue from this plea, as it is natural that he should, whatever his real belief may be.

"Whether he is at present insane is a distinct question from his probable condition at the ages of twelve and fourteen, the time at which the acts were committed. This is a point which continually escapes the attention of the press when discussing the case. The mental status of a boy undergoing imprisonment, trial, and conviction for murder must in ordinary cases be profoundly influenced by those circumstances, and it is one of the significant facts in this case that Pomeroy is not more affected. He does not have that realizing sense of the situation which might be expected. Puberty has also changed his physique as well as his mental condition since his arrest.

"His attempted escape has been thought to indicate the skill of a hardened and experienced criminal. It does not, however, show much judgment, as its success was an impossibility. It was a feeble imitation of such examples as abound in the cheap literature of the day. In hospitals for the insane such attempts are expected as a matter of course in the case of many boys and young men, not too maniacal or demented to control their actions. Incited by the restlessness of immaturity, and sometimes by a morbid love for such notoriety as even failure would afford, they make repeated and often ingenious efforts to escape. Repeated failure, and the certainty of capture and return, does not deter them. A little common sense would have convinced Pomeroy, not only of the impracticable nature of his plans, but of the inevitable prejudice such an attempt, in addition to his false retraction, would create in the mind of the public.

"Upon all the evidence obtainable, I am satisfied of Pomeroy's present mental unsoundness, as well as of his partial if not complete irresponsibility at the time of the commission of the crimes with which he is charged. This evidence is meagre, depending as to the acts on his own imperfect recollections and unreliable statements and on those of little boys half-dead with fright at the time. There is no doubt of the existence of head-symptoms of some kind. He was known at an early age to be guilty of cruelty to animals. He twice ran away from home before the age of twelve, bought fire-arms, and took cars for the West to fight the Indians. He was fond of reading stories of savage warfare. It is not improbable that impressions made in this way in his youth, under the stimulus of puberty and the excitement of constant self-abuse, with its accompanying impairment of will-power, developed into morbid, fixed ideas, and these ideas passed uncontrolled into the horrible acts of torture and murder which have startled the community.

"This development of a fixed idea from some vivid impression in early life

is well shown in a case quoted from Marc, by Bucknill and Tuke.[1] A lady when young had been present at an execution, and conceived a desire to be placed in a similar position. Her religious scruples restrained her for a long time, but on witnessing another execution her morbid fancy was so stimulated as to overcome all self-control, and she murdered a person against whom she had no dislike, for the sake of being hanged in public.

"The authorities which I have consulted — about a dozen in all — agree that these motiveless crimes of young people are due to mental disease of some form, either congenital moral imbecility, moral insanity, masked epilepsy, or uncontrollable impulse, from disorder of the brain connected with puberty, menstruation, or self-abuse; and I believe the case of Pomeroy, if all the facts were known, would prove no exception. It may be said that it is impossible to estimate the amount of self-control existing in any given case; but in hundreds of cases of mental disease with impulsive acts of violence, where there is no motive for prevarication, the patient's assertion that he 'could not help it,' expresses probably the exact truth. Such acts are done without appreciable motive and against the patient's best interests. The physician is often appealed to by persons so afflicted, to put them under restraint and save them from the consequences of their impulsive acts. A recent patient of mine, a boy with a record indicating moral insanity, said to his mother one day, 'Have n't I behaved well to-day?' and without further conversation threw a heavy stone at her. He was immediately alarmed at her narrow escape, and cried out 'Why did n't you dodge it? Why, I might have killed you!'

"It may be claimed that though but partially responsible, the public safety requires the execution of Pomeroy, both for the extermination of a dangerous moral monster and for the sake of deterring others from similar acts. Imprisonment will sufficiently protect the public, and it is not likely his execution would have any deterrent effect whatever. If it would, his hanging might be desirable if not warranted. The effect would be more likely to resemble that of smothering an hydrophobiac. The dread of that process, in addition to a natural horror of the disease, has no doubt induced many cases of imaginary hydrophobia. In the same manner the publication of the details of murder, rape, executions, insane homicides and suicides, and tales of assassination and crime, in the newspapers, spreads an infection which, taking root in the congenial soil of a disordered and enfeebled brain, brings forth a ghastly harvest. The contagiousness of hysteria and suicidal impulse is well known to the profession, and this contagion of homicide is of similar character. It seems to me on the whole of greater importance to society that the causes which conduce to the growth of such moral monstrosities should be understood, than that a few specimens should be hung, as the French say, 'pour encourager les autres.'"

Dr. D. F. Lincoln asked the reader's opinion as to the probable effect of the hanging of Pomeroy upon other children of a similar stamp.

Dr. Fisher thought it would have no effect whatever.

Dr. S. G. Webber had been interested in the case of Pomeroy with reference to the assumption, by others than the reader, of an epileptic condition.

[1] On Insanity, page 199.

The previous history of the boy showed an obscure attack of sickness in 1871, with subsequent occasional headaches, and the torturing of children from time to time. He thought it important that all these conditions ceased during the boy's stay at the Reform School. If the condition were allied to epilepsy, such an interruption would have been very unlikely. Further, there seemed to be too much contrivance in his plans for them to have been of an epileptiform character. Dr. Webber thought the main point to be whether Pomeroy's motives were similar to those actuating sane boys, or the reverse. The former seemed to him to be the case. The reasoning power was apparently retained, there was no evidence of his being prompted by delusions, and the various acts seemed to lack all the elements existing in the various kinds of insane conduct.

As to his moral nature, it is well known that in individuals there is every degree even to almost complete absence of moral feeling, and yet the person may be considered as perfectly sane. Even if we admit that Pomeroy may have possessed a low degree of moral feeling, his education, his surroundings, his ideas derived from trashy stories (he himself stated that reading Indian stories led him to torture boys in imitation of the Indians), all this, with a disposition to cruelty which gained strength the more it was indulged, would seem to have been sufficient motive for his acts.

The circumstances attending the acts cannot be regarded as a proof of sanity, although the acts may be sane. His attempt at breaking jail might be regarded rather as an attempt at notoriety than as an evidence of insanity. Though Dr. Webber had not seen the boy, and had had but little experience in insanity, yet he had carefully read the testimony, and judging from this alone, Pomeroy did not seem to him to be insane, nor did his acts appear motiveless, as has been argued by the counsel for the defense.

Dr. Fisher stated that the suddenness of the impulse could not be considered of special value in forming an opinion, as it is a characteristic of the insane to delay as well as to act quickly. This is evident in the cunning shown by insane suicides, who will often conceal their delusions, even appear to be recovering; thus endeavoring to disarm suspicion, they will suddenly seize upon an opportunity when it arrives. The murder of the girl in Pomeroy's case was certainly a sudden, impulsive act.

Dr. Webber thought the only evidence of his insanity was derived from the acts. These furnish evidence so far as they go, but there should be other evidence which should rather be strengthened by the acts. Possibly Pomeroy's future may give additional light, and the view of his insanity be thus corroborated.

Dr. J. J. Putnam thought that the discussion as to the sanity or insanity of Pomeroy, regarded from the scientific point of view, was to a certain extent an aimless one, because no exact scientific definition of insanity could be given. Every man is in some degree insane and irresponsible, inasmuch as he occasionally commits acts as it were involuntarily, which he wonders at, and for the committing of which he blames himself. The law, on the contrary, is obliged to give a more or less absolute though arbitrary definition of insanity, and Dr. Putnam agreed with Dr. Fisher in thinking that the mental char-

acteristics of Pomeroy and the history of his acts fairly placed him in the class of those whom the law agrees to call insane. At the same time he thought it could not be said that the execution of Pomeroy would do more harm than good, in consequence of its helping to inflame the morbid tendencies in the class of persons of a similar disposition to his own. Although this would no doubt occur to some extent, it seemed to Dr. Putnam to be more than counterbalanced by the fact that the execution would have a salutary influence upon the larger class of ordinary malefactors, who needed to be shown that on the whole punishment was the regular consequence of misdemeanor, and therefore, so long as the jury and a majority of the community had pronounced him guilty and liable, he favored the carrying out of the sentence.

Dr. Fisher did not regard the case as epileptiform. The feeling of relief after the act was no evidence of such a condition, since after the accomplishment of an act, the insane patient frequently manifested such a feeling

Dr. Webber stated that it had occurred to him that Pomeroy's desire seemed to have been to torture, and that the murders were accidental.

Multiple Cystoid Myxoma of the Chorion. — Dr. Haskins showed the specimen, which had been removed from a case seen by him in consultation. The patient had been well till some five weeks ago, her catamenia having been regular. Since then there had been occasional slight flowing, irregular appetite, vomiting at times, and progressive emaciation. She was unmarried, and denied the possibility of conception. When he saw the patient she had been flowing profusely, was very pale and feeble; her pulse was 150. The uterus was enlarged to about the size at the fifth month of pregnancy. The os was found to be dilated slightly. The finger was introduced into the uterus, its contents were detached and came immediately away, following an expulsive pain. The uterus then contracted.

Poisoning from Snake Bite. — Dr. A. B. Hall reported two cases, those of a woman and her husband, who were in the habit of handling snakes at a public exhibition recently given in this city. The woman was seen twenty minutes after having been bitten by a viper, the skin in the vicinity of the wound then being of a greenish hue. He made an incision, cauterized the wound thoroughly with lunar caustic, and ordered whisky to be given freely. On the following day he was informed that his prescription had been fully carried out. The lymphatics of the arm were then swollen. After a week complete recovery had taken place.

The husband was soon after bitten by a rattlesnake; he adopted the whisky treatment and recovered after the lapse of a week.

MEDICAL NOTES.

— Dr. Tissier reports, in *L'Union Médicale*, the case of a girl now seven years old who was born with two teeth. She has always been healthy, both during the time of her nursing and after weaning. She had all the front teeth when six months old, and her first set of teeth still remains entire.

Usually, the reporter remarks, the precocious eruption of teeth is due to some pathological condition of the gums, causing ulceration of the dental follicles and the eruption of the teeth; but in this case the child has always been well, and has kept her teeth without accident. Moreover, the teeth with which she was born were the two upper middle incisors, whereas, usually, the eruption of the middle lower incisors precedes that of the upper.

— We are in receipt of the new circular of the Medical School of Maine announcing the beginning of the next term on February 17, 1876. The following changes have occurred since the last course. Dr. Burt G. Wilder has become professor of physiology, Dr. Jenks, of Detroit, has resigned the chair of diseases of women, and Professor Mitchell has been appointed lecturer on that branch in addition to his own professorship. Dr. Gerrish will give, during the coming term, a short additional course of lectures on public health.

— The cold-water bed as a new method of reducing temperature is recommended by H. D. Felton, M. D., in the *Medical Record* of October 3, 1875. In the case of a patient in the fourth week of typhoid fever, whose temperature was 103.5°–104°, Dr. Felton made use of a water-bed, constructed from a rubber air-mattress, with inlet and outlet at opposite ends, to which he coupled a rubber hose, one pipe being attached to the aqueduct faucet and the outlet conveying the water from the house. His patient lay upon the bed eighteen days, the water being renewed every five hours. It was found that at the time when the temperature of the atmosphere was 62°, and that of the hydrant water 68°, the water in the bed, after remaining unchanged seven hours, was 79°, an increase of seventeen degrees over that of the atmosphere, and of eleven degrees above that of the aqueduct water; therefore the patient imparted eleven degrees of heat to a barrel of water in seven hours, and still his temperature remained at 102¾°.

LETTER FROM PHILADELPHIA.

Messrs. Editors, — After a summer of almost unprecedented good health, and a consequent small death-rate, Philadelphia has begun preparations for a new winter. The daily journals have made you familiar with the immense fruit crop with which southern cities have been blessed since June. The unusual abundance of peaches in particular has enabled even the poor to enjoy this delicious, healthful fruit without stint. To its effects I believe we chiefly owe the low death-rate and the comparative freedom from the ordinary summer complaints.

The two regular medical schools opened last week with large classes. Thus far the Jefferson class numbers four hundred and thirteen students, the University class about three hundred. How long this disproportion will last is uncertain. The University, with its hospital and laboratories, presents large and tempting inducements; but, as I have before remarked, students prefer to live in the main town, and West Philadelphia is a long walk from the boarding-houses. This trivial circumstance seems to carry weight. Professor Gross delivered the inaugural at the opening of the Jefferson school. His subject

was the Medical Literature of America. In a future letter I mean to give you some interesting extracts from this valuable address.

At Wills's Eye Hospital last week two new pavilion wards were dedicated by appropriate services. Addresses were made by the chairman of the hospital committee (General Collis), and by Mr. William Welsh, president of the board of city trusts, who described the construction, heating, and ventilating of the new buildings; finally, Dr. A. D. Hale, chief of the surgical staff, gave an interesting surgical history of the hospital, and of the remarkable improvements in the art and science of ophthalmology which have been made during the existence of the institution. By the erection of the new wards the number of beds for resident patients has been doubled. The cost of these structures has been taken from the principal of the hospital funds, with the belief that the citizens of Philadelphia, who exhibit the most untiring generosity toward charities of this nature, will make good the deficit. A portion has already been donated. The new wards have been erected on ground which belongs to the hospital, and they stand about twenty-five feet from the main building. Each ward is ninety feet long by twenty-two wide, and has a ceiling fifteen feet high. Like all pavilion-wards they have but one story. The north end of each is divided into a vestibule and three rooms. The nurse will occupy one room; the other two will be devoted to bathing, washing, and other conveniences. They are thoroughly ventilated, and have the latest improvements in sewerage. The floors of these rooms are covered with Pelletier cement; the windows here, as throughout the building, are double glazed, and those in the end rooms have solid inside shutters to retain the heat during the winter months. Externally, Venetian blinds serve a contrary purpose in summer. The wash-room has streams of water instead of wash-basins. Each patient is here provided with a hook for his towel, and another for his clothing, which will thus be kept out of the sleeping apartment. In each of the large wards there are twenty beds, with an air-space of twelve hundred cubic feet for each patient. Seventeen windows on the sides and ends of each building will afford ample summer ventilation. Those on the sides are not opposite each other, as is customary, but alternate. This arrangement, it is thought, will prevent stagnant air-spaces in the wards. The outside Venetian blinds will exclude heat and glare, and permit ventilation during the nights of warm weather; they will also prevent injury by rain when the windows are open. The inner surface of these blinds is covered with wire gauze, which will protect patients from currents of cold air by diffusing the latter, and will also exclude troublesome insects. The plaster on the walls and ceilings is of hard sand finish; the sills are of slate, and in the wards there are no inside shutters or curtains to absorb unheathful exhalations. In winter tepid fresh air will be introduced through convenient heaters, which are placed at each end of the wards. By the same means the patients will be supplied with radiant heat. The gaseous products of combustion are conducted by iron pipes from each heater into the centre of the two large ventilating chimneys which refresh each ward. Rarefied air in these ventilating shafts will induce a rapid current from the wards, the impure air escaping by openings in the cold external walls near the floor, and thence through ducts under the floor and into the warm shafts. Large flues also lead into these shafts near the ceiling of the

wards. They are intended for summer use, when the temperature of the wards is too high and external air cannot be safely introduced. The ward floors are composed of single layers of yellow pine boards. This simplicity, it is hoped, will prevent absorption of poisonous effluvia and collections of vermin. The only objection to single floors is their chilliness. This objection has been removed in this case by an arrangement which will keep the air-space between the floor and the brick pavement beneath at an uniform temperature. The stone foundations and basement walls are capped by a horizontal layer of North River flagging, which will check the upward movement of moisture which rises from the ground through ordinary stone foundations and into brick walls by capillary attraction. The floor-joists rest upon this flag-stone coping, and do not enter the brick walls, as is usual. By this means they are ventilated, and kept free of dampness and liability to decay. External grated openings will, in summer, ventilate the space beneath the floors. These openings will be closed in winter, but it is thought, since the sun will shine upon the opposite side of the buildings during the day, that sufficient change of air in the sub-space will be caused by currents induced throughout the hollow space between the walls of the building. This space opens into the roof-ventilator. The outer walls are of hard brick, the inner of soft. The hard outer brick will resist the weather, the inner will prevent condensation of moisture. The air-space between the walls ventilates the roof and cellar, and will act as a non-conductor to external heat in summer, to internal warmth in winter. Cedar shingles cover the roofs; they are the most expensive covering, but are a better non-conductor than either slate or metal.

The loft is plastered under the rafters; the ceiling on its upper as well as its lower surface. The wards are thus interiorly protected in this portion by a triple non-conductor. The building materials are of the best stock. Including plumbing and heaters, the cost of the two wards will be $5500, to which may be added $2000 for furnishing, paving, and fencing the ground plot. The surgeons of the hospital now control four sections, of twenty beds each. The hospital has heretofore been overcrowded, and the new wards were much needed. The last three yearly reports of the institution show a steadily increasing demand upon its acommodations. In 1872 there were treated 2876 out and in patients; in 1873, 3504; in 1874, 3809. Wills's Hospital was founded in 1823 by means of the legacy of James Wills, a Quaker grocer, who, with the exception of a few small legacies, gave his entire fortune to this object, stipulating only that the hospital should adopt his name.

In many particulars the new wards resemble the pavilion-wards of the Presbyterian Hospital, which I described in detail fifteen months ago. Yet in many other respects they differ from the latter, and since this style of ward is creating an increasing interest among hospital committees, I have ventured to give you this somewhat lengthy description.

A few evenings ago the Pennsylvania Association of Dental Surgeons held its annual meeting. This association was organized in December, 1845, and has ever since been in active operation, holding monthly meetings for the consideration of all matters relating to dentistry and collateral subjects. Standing committees investigate questions of interest to dentists, and from time to

time make reports. At the meetings of the association essays are read, special cases in practice are considered, each subject is discussed, and ideas are compared; mutual instruction and the elevation of the art of dentistry being the aim and end of the association.

At the meeting of the Pathological Society this week, one of the members presented for inspection a human foot, upon the outer surface of which, directly after its forcible removal from the leg by a railway crush, he had rubbed one drachm of dry salicylic acid. He then exposed the foot to the sun and weather for eighteen days. At the end of this time he cut into the member, found it perfectly sweet, the skin soft and pliable, the muscles unchanged both in color and in consistence, and hence he recommended the acid as an economical preservative. Since salicylic acid is soluble in not less than three hundred parts of water, the rationale of this conservative effect was asked for. The experimenter could not give it, but considered the healthy condition of the foot an obvious argument in favor of the process, whatever that might be. Dr. Tyson thought the action of the acid might be explained by the abundant presence in the blood and serous fluids of phosphate of soda, which substance renders salicylic acid very soluble. Dr. H. Allen then suggested that since the new theory of decomposition claims that it is caused by bacteria, the acid might have preserved the foot simply by protecting it from these animalculæ. The subject of the possible value of this acid as a preservative agent was then referred to a committee for investigation.

A promising young scoundrel of gentlemanly appearance, perhaps a student, one day last week supplied the morning papers of Philadelphia with false information of the death of Professor Charles A. Stillé, Provost of the University of Pennsylvania. Obituary notices of a highly complimentary character were published by the morning press, but before evening the information proved to be a hoax. The societies of the university are making earnest search for the miserable youth who forged the report. Professor Stillé has reason to be gratified by the warm and friendly words of the press in connection with himself, but the public are highly indignant over this outrage.

As a coincidence, I may mention that a Philadelphia physician, in July last, at the request of the editor of the *Philadelphia Medical Times*, wrote for that journal an obituary notice of Professor Traube, of Berlin, news of whose death was primarily derived from the *Allegemeine Zeitung*, of Vienna. Having been well acquainted with Professor Traube and his family, he also wrote a letter of sympathy to the surviving members. He has just received a verbal message from them to the effect that they had received his letter, and that he would appreciate their silence when informed that Professor Traube *is not dead*. Medical and secular papers in Germany and elsewhere published biographical and very friendly notices of the professor. But this is the *second* time that he has met with this painful experience. It is not then surprising that he feels annoyed and depressed by it. Professor Traube, however, knows nothing of the embarrassment of those who have written the obituary notices. The Philadelphia physician just mentioned finds only a slight compensation for his somewhat awkward dilemma in the appreciative and affectionate character of the obituary which he so unsuspectingly wrote. X.

PHILADELPHIA, *October* 16, 1875.

THE METRIC SYSTEM.

MESSRS. EDITORS, — Your correspondent E. T. W., in the JOURNAL of October 28th, calls our present system of weights and measures *duodecimal*. We fail to see in what respect it is so. He speaks of our tables and of the duodecimal system of notation in such a way as to lead us to infer that the principle is the same in both. This is calculated to convey an entirely wrong impression. The system of notation he refers to is that in which the figure 1 (or the first figure used in numeration, whatever sign may be chosen therefor) followed by 0 has the value of twelve units, and not of ten as in the decimal system. In this sense the duodecimal system does not exist at all; much less could it exist in our tables, and yet any one unacquainted with the meaning of the term would suppose from the wording of his article that it did exist in the latter.

Let us now see if our tables are duodecimal in any sense. In the only other sense of the word, a duodecimal is a number belonging to a series all of which are multiples of 12, or the scale of which is 12. A table of weights and measures is in this sense duodecimal when the units therein progress by 12's. We will examine our tables (we can do it with the aid of an arithmetic) and see if they progress by 12's.

I find the first table usually given in our school-books to be that of Federal currency. Here we have four 10's; there are no duodecimals, but decimals in *every* sense of the word; decimals, to which your correspondent so warmly objects.

The next table is that of liquid measure. In this we find two 4's, three 2's, one 63, and one 31½. Here again there are no 12's, but instead a 63 and a 31½, neither of which can be halved or quartered, a process for which your correspondent finds our tables so admirably adapted.

Next comes the table of avoirdupois weight. This contains two 16's, one 28, one 4, and one 20. Still no 12's, but instead one multiple of 10.

In this way, if we go through all the tables, we shall find every variety of number, with a good share of fractions thrown in for ornament. But how many 12's are there? We will count them.

I have before me fifteen different arithmetics taken at random from a much larger collection.

In no two of these are the tables exactly alike in form and number. I find them most complete in Walkingame's arithmetic, an old work. Not including the four 10's in the table of money, nor the numbers in that of English money, these tables contain one hundred and fourteen numbers. Among these appear nine 3's, four 5's, two 7's, five 8's, one 10, three 20's, six 30's, three 40's, one 50, three 60's, two 100's, one 640, one 1120, six 31's, one 1728, one 1½, one 5½, one 7½, one 13½, one 31½, one 272¼, nine 2's, and eleven 4's. And how many 12's? Only four! And two of these used for the same thing, namely, to express the relation between the ounce and the pound in two different tables.

Only four 12's with one hundred and fourteen numbers which are not 12's. Adding to the numbers given in these tables those in other arithmetics, but not included in this, we have one hundred and twenty-eight, of which, by the way, six are 10's, and twenty-six are integral multiples of 10.

Such are the tables which your correspondent sees fit to call duodecimal.

But he may object that these four 12's are oftener used than many of the other numbers. One, for instance, in the table of long measure, where it expresses the relation between feet and inches. True; it occupies here a very important place. *Consequently* our engineers have long since given it up; given up the only 12 in this table, and divided the foot no longer into 12 parts, as before, but into 10. This, too, they have done knowing that they thereby subjected themselves to the inconvenience of being at variance with their neighbors. Such is the importance which practical men have given to the decimal.

E. T. W. implies that there is one other defect in the metric system. While the decimal ratio is infinitely more favorable to calculation than any other in use, for the daily purposes of life he prefers the binary subdivision He would halve and quarter things. So would we. There is no need on this account to reject the decimal. We may employ both, and we do employ both. Does your correspondent remember ever having seen a half or a quarter of a dollar? Has he ever seen half a dime, or a five-cent piece? He may cut his soap as well as his dollars into halves and quarters, and call the pieces a half or a quarter metre long. History will show him, if he will only take the trouble to consult it, that the metric system has received by law in France, and in Germany in the act of January 26, 1870, its regular binary subdivisions. There are by this law in use $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$, $\frac{1}{50}$, and $\frac{1}{500}$ litre pieces, and so with the gram and metre.

In our own tables, however, there are, according to Walkingame, thirty-two numbers which cannot be divided by 2, an inconvenience which never occurs in the metric system.

"In small dealings, the convenience of buyers and sellers is best consulted when the multiples and sub-multiples of quantities correspond with the multiples and sub-multiples of coins. If a pound of any commodity costs twenty-five cents, it would better suit all parties who use the Federal currency if we could divide the pound evenly into five parts than it does now to divide it into four. Nothing is more certain than that quantities bought and sold, and the instrument of purchase and sale, should be subject to the same law.[1]

As to whether or not the duodecimal (or duodenary) or the octonary system of notation will ever supplant the decimal is a matter of speculation into which it is unnecessary to enter here. In the published proceedings of the American Pharmaceutical Association for 1859 is an exhaustive and very interesting report on the subject, of about forty pages, to which we would refer your correspondent E. T. W. In the mean time, since the world actually uses the decimal system of notation, and *we* use the decimal system in our table of money, let us adopt it also in our other tables.

As for our having received our tables from the Roman *as*, this one statement, made with pride by your correspondent, certainly *sounds* correct. But if hitherto it has been our disgrace and our misfortune to endure for two thousand years a ridiculous jumble of weights and measures, which can point to nothing better than an *as* for its origin, it is high time, now that wiser nations have set us the example, to adopt this decimal system, model of beauty and simplicity, born of science, and proud to count as its originators the most famous savants of the world. J. P. P.

Boston, *October* 30, 1875.

[1] See pamphlet on The International or Metric System, published by Hurd and Houghton.

MESSRS. EDITORS, — Your correspondent E. T. W., in arguing in favor of what he is pleased to call "our present system" of weights and measures, really suggests the strongest reason for abandoning it. This is to be found in the importance of establishing conformity between our method of numerical notation and our system of weights and measures.

It may be perfectly true that "the natural method of subdivision is not by decimating, but by halving and quartering," but inasmuch as the arithmetic of all civilized nations is established on a decimal basis, the practical question for us to consider is whether we shall change our arithmetic to suit our weights and measures or change our weights and measures to suit our arithmetic. Of the two courses there can be no doubt that the latter offers the less violence to the mental processes of the civilized world. H. P. B.

BOSTON, *October* 29, 1875.

MESSRS. EDITORS, — So far as our own profession is concerned, the only practical difficulty about the metric system consists in accustoming ourselves to writing prescriptions decimally. An occasional half-hour, however, in practice will soon convince any one that the change is easy. Much may be done by your own excellent journal by giving us, especially in the department of Recent Progress in the Treatment of Disease, an occasional prescription written with the old and new systems side by side for comparison. For example, on page 157, volume xcii., —

		Approximately.
℞	Potassæ chloratis	8 3ij.
	Aquæ destillatæ	225 ℥vij.
	Syrupi rubi idæi	25 ℥vj.

This is indeed an *innovation:* so also were vaccination, ether, steam-engines, obstetric forceps, and telegraphs, but none the less useful as *innovations.*

A decimal system has its chief advantage in its simplicity, for its operations are conducted by the simple shifting of a point to right or left, as in Federal money.

Another advantage is in the disuse of the old signs ℥ and ℨ, which were so likely to be confounded when carelessly or hastily written. It is a fact that the similarity of these signs has resulted in the loss of human life.

The allusion of E. T. W. to the use of the old system in the "rural districts" of France reminds us that in the "rural districts" of New England potatoes are still sold at *four and sixpence* a bushel, cloth at *two and threepence* a yard, and laborers are paid at *nine shillings* per day, instead of 75 cents, 37½ cents, and $1.50. It is needless to state that this argument is almost *too rural.*

The old Fahrenheit thermometer, with its unmeaning standards of 32° and 212°, ought also to be numbered with the things of the past, and give place to the Centigrade or decimal thermometer, based upon a standard of common sense. SAMUEL W. ABBOTT.

WAKEFIELD, *November* 1, 1875.

Another correspondent suggests that the new system could best be made familiar to the profession by a new edition of the Dispensatory, with the weights given according to the metric system with their equivalents in the present system in brackets. We fear that such a publication can hardly be expected before July 4th. EDS.

WEEKLY BULLETIN OF PREVALENT DISEASES.

The following is a bulletin of the diseases prevalent in Massachusetts during the week ending October 30, 1875, compiled under the authority of the State Board of Health from the returns of physicians representing all sections of the State: —

The summary for each section is as follows: —

Berkshire: Bronchitis, influenza, typhoid fever.

Valley: Typhoid fever, influenza, rheumatism, bronchitis. South Hadley reports measles and diphtheria.

Midland: Typhoid fever, influenza, bronchitis.

Northeastern Typhoid fever, influenza, bronchitis. Lynn reports diphtheria and German measles; Lexington reports measles "mild and abundant;" Gloucester returns diphtheria "on the increase and severe."

Metropolitan: Typhoid fever, bronchitis, diphtheria (mild), scarlatina (mild). The two latter have increased considerably.

Southeastern: Influenza, typhoid fever. Very little sickness. A few towns report diphtheria.

In the State at large there was a subsidence of all diseases except diphtheria. The order of relative prevalence is as follows: typhoid fever, influenza, bronchitis, rheumatism, diphtheria, scarlatina, pneumonia, diarrhœa, measles, croup, dysentery, whooping-cough; the last seven are low in the scale.

F. W. Draper, M. D., Registrar.

COMPARATIVE MORTALITY-RATES FOR THE WEEK ENDING OCT. 23, 1875.

	Estimated Population.	Total Mortality for the Week.	Annual Death-Rate per 1000 during Week.
New York	1,060,000	457	21.5
Philadelphia	800,000	315	20.5
Brooklyn	500,000	205	21.3
Chicago	400,000		
Boston	342,000	154	23.4
Cincinnati	260,000		
Providence	100,700	35	18.1
Worcester	50,000	15	15.6
Lowell	50,000	16	16.6
Cambridge	48,000	16	17.3
Fall River	45,000	12	13.9
Lawrence	35,000	11	16.3
Lynn	33,000	14	22.1
Springfield	31,000	4	6.7
Salem	26,000	8	16.0

Normal Death-Rate, 17 per 1000.